

Project Name: Peñuelas Valley Landfill
Project Location: Peñuelas Puerto Rico
Project Number: 184-802

Date: 3/15/2019
Calculated By: CSD
Checked By: AJK

TREATMENT ALTERNATIVES COST ESTIMATION

Purpose: There are 4 alternatives for treatment of this site. Alternative 1 is Basin Rehabilitation which involves Basin Cleaning, Sediment Forebay Modifications, and Stormwater Baffles. Alternative 2 is the construction of a Stormwater Bypass Channel. Alternative 3 is Erosion and Sedimentation Controls, and Alternative 4 is the Excavation Sequencing Plan.

Alternative 1: Basin Rehabilitation

Option 1A: Basin Cleaning

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost/Unit (\$)</u>	<u>Total Cost</u>
Excavation	43,161	CY	\$4.00	\$ 172,643.18
Muck Removal	15,041	CY	\$2.00	\$ 30,081.77
Raise Existing Emergency Spillway	1	LS	\$2,000.00	\$ 2,000.00
Remove Existing Bypass Channel Spillway	1	LS	\$1,500.00	\$ 1,500.00
Basin Inlet Channel	1	LS	\$10,000.00	\$ 10,000.00
Survey	1	LS	\$5,000.00	\$ 5,000.00
TOTAL COST				\$ 221,224.95

Alternative 1: Basin Rehabilitation

Option 1B: Stormwater Baffles

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost/Unit (\$)</u>	<u>Total Cost</u>
Soil (Fill)	1,949	CY	\$ 4.00	\$ 7,795.10
Vegetated Soil	6,781	SF	\$ 1.00	\$ 6,781.00
Seeding/Mulching	6,781	SF	\$ 1.21	\$ 8,205.13
TOTAL COST				\$ 22,781.23

Alternative 1: Basin Rehabilitation

Option 1C: Sediment Forebay Modifications

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost/Unit (\$)</u>	<u>Total Cost</u>
Check Dam Construction	1	LS	\$ 2,000.00	\$ 2,000.00
Dam	1	LS	\$ 2,000.00	\$ 2,000.00
Excavation	2,511	CY	\$ 2.00	\$ 5,022.35
Fine Grading	1	LS	\$ 3,500.00	\$ 3,500.00
Survey	1	LS	\$ 5,000.00	\$ 5,000.00
TOTAL COST				\$ 12,522.35

Alternative 2: Bypass Channel

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost/Unit (\$)</u>	<u>Total Cost</u>
Culvert	135	FT	\$ 65.00	\$ 8,775.00
Extend Existing Culvert	50	FT	\$ 50.00	\$ 2,500.00
Proposed Stormwater Swale to Sedimentation Pond	175	FT	\$ 25.00	\$ 4,375.00
Bypass Channel	905	FT	\$ 8.38	\$ 7,583.90
TOTAL COST				\$ 23,233.90

Alternative 3: Erosion and Sedimentation Controls

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost/Unit (\$)</u>	<u>Total Cost</u>
E&S Controls	5700	FT	\$ 3.50	\$ 19,950.00

Alternative 4: Excavation Sequencing Plan

<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Cost/Unit (\$)</u>	<u>Total Cost</u>
Engineering Design	1	LS	\$ 25,000.00	\$ 25,000.00

Notes:

1. Estimated quantities based on Figures 3-7 prepared by Civil & Environmental Consultants, Inc., dated March 2019.
2. Unit costs based on construction costs for previous projects. Costs have been adjusted for inflation based on the RSMeans historical cost index.